

Composing and Decomposing Numbers: practice solutions, Kindergarten – download the PDF

Written solutions to the chapter problems. Check each step, then correct yourself.

1 Counting two colors



There are 6 orange counters and 3 blue counters. We put them together: $6 + 3 = 9$.

There are **9 counters** in all.

2 Ways to break apart 4



We look for two numbers that make 4: $4 = 1 + 3$, $4 = 2 + 2$ and $4 = 3 + 1$.

There are **3 ways** if we do not use zero.

3 Fingers on two hands



The whole is 5. One part is 3. We need the other part: $3 + 2 = 5$.

Ana has **2 fingers** on her right hand.

4 How many empty spaces?



We count the empty squares: there are 2. So $8 + 2 = 10$.

2 more counters fill the frame.

5 Ten and some ones



A full frame is 10. Add the 3 extra counters: $10 + 3 = 13$.

Mia shows the number **13**.

6 True or false?



- a. 4 and 3 make 7, so it is **true**.
- b. 5 and 5 make 10, not 9, so it is **false**.
- c. 2 and 4 make 6, so it is **true**.

7 Missing part in a bond



The whole is 8 and one part is 5. We need $5 + \square = 8$. Count up from 5: 6, 7, 8. That is 3 steps.

The missing part is **3**, and $8 = 5 + 3$.

8 Pairs that make 10



- a. $3 + 7 = 10$, so the missing number is **7**.
- b. $6 + 4 = 10$, so the missing number is **4**.
- c. $9 + 1 = 10$, so the missing number is **1**.
- d. $5 + 5 = 10$, so the missing number is **5**.

9

Seeds in a garden

The whole is 10 seeds. One part is 6. We need $6 + \square = 10$.

Since $6 + 4 = 10$, Maya plants **4 seeds** in the second row.

10

Another way to make 5

a. There are 2 orange counters and 3 blue counters: $5 = 2 + 3$.

b. Many answers are possible. For example, $5 = 1 + 4$ or $5 = 4 + 1$.

11

Which teen number?

a. The full frame is 10 and the second frame has 6 counters: $10 + 6 = 16$.

b. The teen number is **16**.

12

Muffins in a box

We compose a teen number: a full ten and 8 extra ones.

$10 + 8 = 18$. There are **18 muffins** in all.

13

Break apart 15

15 is a full ten and some extra ones. If we take away the ten, 5 ones are left.

$15 = 10 + 5$. The missing number is **5**.

14

Which one does not belong?

$3 + 4 = 7$, $5 + 2 = 7$ and $1 + 6 = 7$. But $6 + 2 = 8$.

The pair that does not belong is $6 + 2$.

15 Counting up to 14



a. $7 + 3 = 10$, so he adds **3** counters to fill the frame.

b. $10 + 4 = 14$, so he adds **4** more counters.

In all he adds $3 + 4 = 7$ counters, and $7 + 7 = 14$.

16 Mystery teen numbers



a. A ten and 7 ones is $10 + 7 = 17$. I am **17**.

b. First put the extra counters together: $2 + 6 = 8$. Then $10 + 8 = 18$. I am **18**.

17 Find the mistake



$9 + 1 = 10$ is correct. But $10 + 2 = 12$, not 13.

The first sentence is wrong. The right equation is $13 = 10 + 3$.

18 All the ways to make 6



We go up from 1: $6 = 1 + 5$, $6 = 2 + 4$, $6 = 3 + 3$, $6 = 4 + 2$, $6 = 5 + 1$.

There are **5 ways**.

19 Checking decompositions of 12



a. A ten and 2 ones make 12, so it is **true**.

b. $7 + 5 = 12$, so it is **true**.

c. $6 + 5 = 11$, not 12, so it is **false**.

20 Toy cars



The whole is 16 and one part is 10. We need $10 + \square = 16$.

A ten and 6 ones make 16, so $16 = 10 + 6$. Sam has **6 blue cars**.

21 Stickers in two pockets



We try pairs that make 9: $8 + 1$, $7 + 2$, $6 + 3$, $5 + 4$.

Only $5 + 4$ has a difference of 1. The left pocket has **5 stickers** and the right pocket has **4 stickers**. Check: $5 + 4 = 9$.

22 Fill the frame, then keep going



- a. $4 + 6 = 10$, so he adds **6** counters.
- b. To reach 13 he needs 3 more beyond the ten: **3** counters.
- c. $13 = 10 + 3$.



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